2008 Product Brochure

# Your Industrial Ethernet for Control and Automation

21st MOXA Creating Excellence Since 1987

Over 350 products For your Application

ip SYSTEMES

## Easily Supervise Ethernet Network via Web Browser

▶ see page 2

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NEMA TS2 · cULus LISTED · DNV · Ex · RoHS

### IKS-6726

**Industrial Modular Gigabit Rackmount Managed Ethernet Switch**

▶ see page 3

### EDS-828

**Modular Gigabit Managed Ethernet Switch**

▶ see page 5

### ioLogik E2242

**Intelligent Active Ethernet I/O**

▶ see page 15

### VPort 254

**Industrial Video Encoder Achieves MJPEG/MPEG4 Full D1 @ 30 FPS**

▶ see page 20

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# Your One Source for Industrial Ethernet Solutions

## Product and Market Coverage

Industrial Rackmount Ethernet Switches

Modular Gigabit Ethernet Switches

Managed and Unmanaged Ethernet Switches

Active Ethernet I/O

Industrial Wireless Ethernet

Industrial IP Video

Ethernet to Fiber Media Converters

| | |
|---|---|
| **Utility Automation** | Power Utilities and Substation, Water & Wastewater |
| **Transportation Automation** | Maritime Industry, City Traffic, Road Traffic, Rail Traffic |
| **Manufacturing Automation** | Machinery, Oil & Gas, Petrochemical, Semiconductor, Metals, Mining |

## Core Competence

- Moxa Turbo Ring with less than 20 ms recovery time
- Layer 3 switching, advanced network management and security features
- IP30/66/67/68 casing, DIN-Rail or rack mounting, extended temperature, redundant power, and industry proven certifications
- Optical fiber, twisted pair, and wireless connections available
- Real-time Ethernet I/O and video-over-IP solutions

## Five Reasons to Buy from Moxa

**One Source for All Your Industrial Ethernet Needs**
Moxa offers you one-stop shopping for industrial Ethernet solutions, including industrial Ethernet switches, industrial rackmount Ethernet switches, industrial wireless Ethernet, Ethernet-to-fiber media converters, Active Ethernet I/O, and industrial video networking products. Moxa's products offer rugged features, better performance/price ratio, and meet hazardous location certifications and industry standards.

**21 Years of Experience in Industrial Device Networking**
For over twenty one years, Moxa has offered world-class industrial networking products for a diverse range of industrial applications, including power automation, traffic control, process automation, facility monitoring and control, outdoor use, and more.

**5-year Warranty and Best Quality**
As an ISO 9001:2000 and ISO 14001 certified company, Moxa adheres to strict quality control and environmental standards for design, production, and shipping. We are proud to provide a solid 5-year warranty on most products to ensure customer's satisfaction.

**Trusted Customer Service and Support**
Moxa's comprehensive customer service offers premium technical consulting and an extensive range of technical resources, making it easy for you to find the right kind of technical and troubleshooting support.

**Worldwide Sales Connections**
Moxa has most professional and experienced distributors located in more than 60 countries around the world, and maintains branch offices on three continents, giving customers prompt in-country sales service, just-in-time delivery, and timely purchasing support.

# MXview Network Management System

**When you need more information about your Ethernet infrastructure to ensure optimal operation and reduce system downtime, Moxa's MXview provides the solution.**

Moxa MXview is a reliable and user-friendly web browser-based network management platform that analyzes, monitors, and configures local and remote network connections formed from Moxa's managed Ethernet switches. MXview is built on a totally integrated architecture that offers automated discovery of Ethernet switches, topology mapping, device alerting, reporting, and device configuration. You will be able to monitor and troubleshoot any network proactively, and gain total control of exactly what's happening to your industrial Ethernet networks and devices!

## Diagnose and Monitor Networks at a Glance

**Enjoy a remote access experience with the MXview network management system, which features a user-friendly web browser interface, and comprehensive management tools.**

### Topology Visualization

MXview uses auto-discovery device searching and a built-in editing tool to draw the network connections between Moxa's managed Ethernet switches. The topology map ensures easy management of the devices on the network and provides information for troubleshooting network problems.

### Performance Monitoring

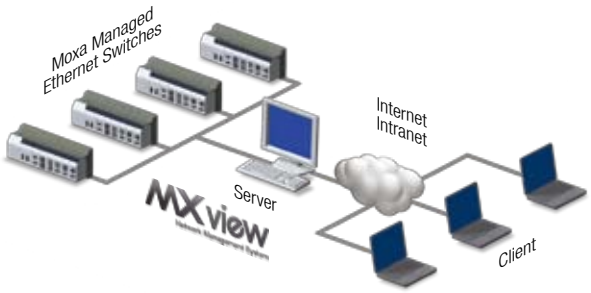
Network operators are able to monitor and analyze network traffic reports for each managed Ethernet switch. Moxa's MXview provides a complete network performance analysis by diverse trending graphs.

### Event Management

When an exception is detected, MXview will alert the network operators via email or color-coded icons on the topology map and network status display. Users can easily troubleshoot through an event log to keep the network running smoothly.

### Device Configurations

MXview is a powerful portal that works by associating itself with Moxa's managed Ethernet switches. You can easily configure and manage all connected devices directly, including firmware upgrading, IP setting, configuration file, and more.




MXview
Network Management System

Web Browser Based Network Diagnosis

- Auto device discovery for creating a topology map
- Rapid network troubleshooting by network diagnosis
- Accurate and efficient event management
- Various trending graphs to generate performance reports
- Remotely accessible through an easy web browser UI

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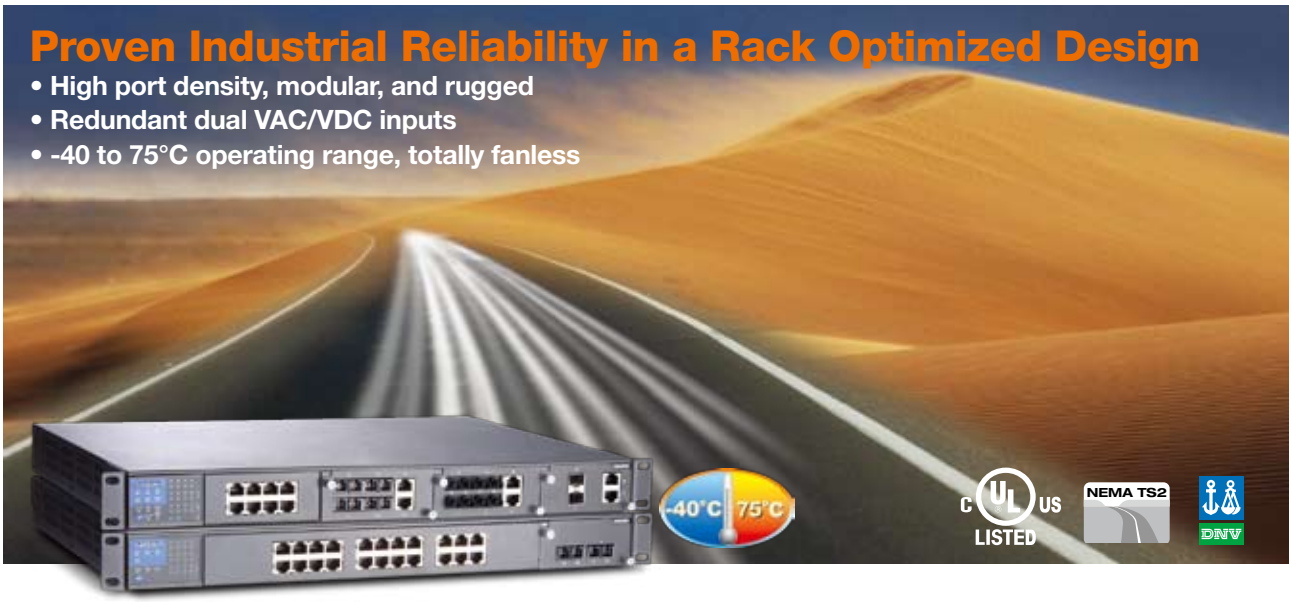
# Industrial Rackmount Ethernet Switches

**IKS-6726 series** 24+2G-port Gigabit Modular Managed Ethernet Switches

**IKS-6324 series** 22+2G-port Gigabit Unmanaged Ethernet Switches


Proven Industrial Reliability in a Rack Optimized Design
• High port density, modular, and rugged
• Redundant dual VAC/VDC inputs
• -40 to 75°C operating range, totally fanless
-40°C 75°C
c UL us LISTED
NEMA TS2
DNV

**Do you need highly reliable rackmount switches to maximize uptime and rigorous stability of your mission-critical networks?**

To run mission-critical applications, high reliability can never be compromised for demanding network connections. Most existing rackmount Ethernet switches designed for use in commercial environments are inadequate to meet the strict environmental requirements. In response, Moxa released industry-leading industrial rackmount Ethernet switches that offer a unique mix of industrial features to improve network availability and environmental adaptability under industrial harsh conditions.

## A Unique Mix of Reliability and Flexibility to Suit Harsh Industrial Applications

Moxa's Industrial rackmount Ethernet switches, IKS series, are specially designed to run demanding industrial applications. The IKS-6726 series meet a variety of industry standards, including NEMA TS2 for road traffic, EN50155 and EN50121-4 for rail traffic, UL60950-1 for safety, and DNV/GL for marine and offshore use. These approvals guarantee high adaptability to any severe condition, such as vibration and shock, humidity, extreme temperatures, and EMI/EMC noise. A high degree of industrial reliability is ensured by its totally fanless design and a wide operating temperature range.

Redundancy is a key factor to achieve high network availability. The proven IKS-6726 forms network redundancy through Moxa Turbo Ring (recovery time < 20 ms) and redundant power inputs. Perfectly housed in a modular, industrial-grade chassis, the IKS-6726 can be expanded with various media modules, such as RJ45, fiber and SFP ports, for flexible applications.

### Certified for Diverse Industrial Applications

DNV/GL for Maritime/Offshore

EN50155 and EN50121-4 for Rail Traffic

NEMA TS2 for Road Traffic

UL60950-1 for Safety

### IKS-6726 Series

24+2G-port Rackmount Managed Ethernet Switches

- -40 to 75°C operating temperature range
- Turbo Ring and RSTP/STP for Ethernet redundancy
- Isolated redundant power inputs with universal 24/48 VDC or 110/220 VDC/VAC power supplies
- Various media modules offered: RJ45, fiber and SFP ports

### IKS-6324 Series

22+2G-port Rackmount Unmanaged Ethernet Switches

- High port density, rugged industrial-grade design
- Redundant power: universal 24/48 VDC or 110/220 VDC/VAC power supplies
- -40 to 75°C operating temperature range

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# Industrial vs. Commercial Rackmount Ethernet Switches

## EMC

| Item | | Moxa IKS Series | Commercial Switch |
|---|---|---|---|
| ESD | Enclosure port contact | ±8 KV | ±4 KV |
| | Enclosure port air | ±15 KV | ±8 KV |
| Radiated RFI Standard (RS) | Signal ports | 35 V/m @ 80-1G Hz | 10 V/m @ 80-2G Hz |
| Surge | Signal ports | 4 KV CM / 2 KV DM | 1 KV |
| | DC power | 4 KV CM / 2 KV DM | 0.5 KV |
| | AC power | 4 KV CM / 2 KV DM | 2 KV |
| PF Magnetic Field | Enclosure ports | 100 A/m continuous | 30 A/m |
| | | 1000 A/m 1s to 3s | |

## Environmental Tests

| Item | Moxa IKS Series | Commercial Switch |
|---|---|---|
| Low air temperature operation | -40°C, 24-hour test and 48 hour cycling test | 0°C |
| High air temperature operation | +85°C, 24-hour, 95% humidity test and 48-hour cycling test | 40°C |
| Low air temperature for storage and transportation | -40°C, 16-hour test | -40°C |
| High air temperature for storage and transportation | +85°C, 20-hour test | 70°C |
| Stationary vibration | 5-500 Hz Sine resonance<br>2-100 Hz Sine endurance test<br>3-150 Hz Sine endurance test | n/a |
| Shock | Half-sine duration: 11 ms<br>Peak acceleration: 15 g | n/a |
| Freefall | 0.9 m (mass less than 20 kg) | n/a |

# Rigorous Tests Prove Its Industrial Reliability and Suitability

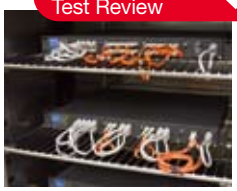
From an "industrial" point of view, the most benefit of Moxa's IKS series is that they have passed a set of strict design and manufacturing tests to deliver the ultimate in industrial grade quality and operating reliability.

### Design-phase Tests Maximize Operational Stability

FREE Download Test Review

ESD Test

Surge/EFT Test


Wide Temperature Test

Vibration Test

Shock Test

Freefall Test

### Production-phase Tests Optimize Hardened Quality

Board-level Test

Burn-in Test

System Level Test

Hipot Test

## PowerTrans Series IEC 61850-3 Ethernet Switches

IEC 61850-3 Ethernet Switches

**PT-7828/7728**

IEC 61850-3 L3/L2 24+4G-port Rackmount Gigabit Modular Managed Ethernet Switch

**PT-7710**

IEC 61850-3 8+2G-port Rackmount Gigabit Modular Managed Ethernet Switch

**PT-7324**

IEC 61850-3 22+2G-port Smart Gigabit Rackmount Ethernet Switch

## NEMA TS2

The National Electrical Manufacturers Association (NEMA) established the TS1 standard to define technically adequate and safe traffic control equipment. The NEMA TS2 defines controllers, cabinets, and systems more completely than TS1, promotes better interchangeability, and allows for future expandability. With specific highlight on the adaptability under outdoor cabinet environments, TS2 contains the environmental and testing requirements, including guidelines for temperature, humidity, voltage, vibration, and shock.

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# Modular Gigabit Ethernet Switches

**EDS-828 series** L3 24+4G-port Modular Gigabit Managed Ethernet Switches

**EDS-728 series** L2 24+4G-port Modular Gigabit Managed Ethernet Switches

## Offer Maximum Flexibility for Evolving Requirements

- Intelligent L3/L2 switching
- Upgrade slower networks
- Flexible media configurations

## Flexible, Modular Architecture for Cost-effective Expansion and Upgrade

The modular design of the EDS-728/828 series makes network planning easy. Connection flexibility is guaranteed with the interchangeable Gigabit and fast Ethernet modules, which come with SFP, copper, and fiber optic ports. Up to 4 Gigabit ports that support redundant ring and uplinks are available to create a powerful redundant Gigabit Ethernet network for backbone applications. Advanced management and security functions make it unsurpassed in network reliability and efficiency. In particular, the EDS-828 features the full-wired speed of Layer 3 switching that provides a faster and less expensive way to segment a large-scale network and optimize network traffic.

## Optimal Network Management and Control

The EDS-728/828 series deliver superior management features that include QoS, IGMP snooping/GMRP, VLAN, LACP, SNMPv1/v2c/v3, and RMON. Advanced security functions are also provided, such as IEEE 802.1X, HTTPS, and SSH, to enhance network security. Especially, the EDS-828 supports Layer 3 switching, which assists you in building an optimized and highly efficient network.

## Gigabit Ethernet Performance and Redundancy

The EDS-728/828's modular solution offers a choice of media and bandwidth configurations, but also leaves room for future expansion. Upgrading network to Gigabit speeds can optimize critical network traffic. With up to four Gigabit ports, a redundant Gigabit ring can be created that also connects to other redundant rings at Gigabit speeds. High data availability achieved through redundancy is becoming a key criterion for many industrial network deployments. The EDS-728/828 series support Gigabit Turbo Ring that allows users to build large fault tolerant ring architectures with ultra high-speed fault recovery (recovery time < 20 ms at 250 Ethernet switches).

### EDS-728/828 Series

Award-winning Modular Gigabit Managed Ethernet Switches

- Support for Layer 3 switching via static or dynamic routing functions (EDS-828 only)
- Rich media options: SFP, copper, and fiber optic ports
- Gigabit Turbo Ring and RSTP/STP for Ethernet redundancy
- IEEE 802.1X, HTTPS, and SSH enhance network security
- QoS, IGMP snooping/GMRP, VLAN, LACP, SNMPv1/v2c/v3, RMON supported
- Easy system backup with Automatic Backup Configurator, ABC-01 (see page 10)

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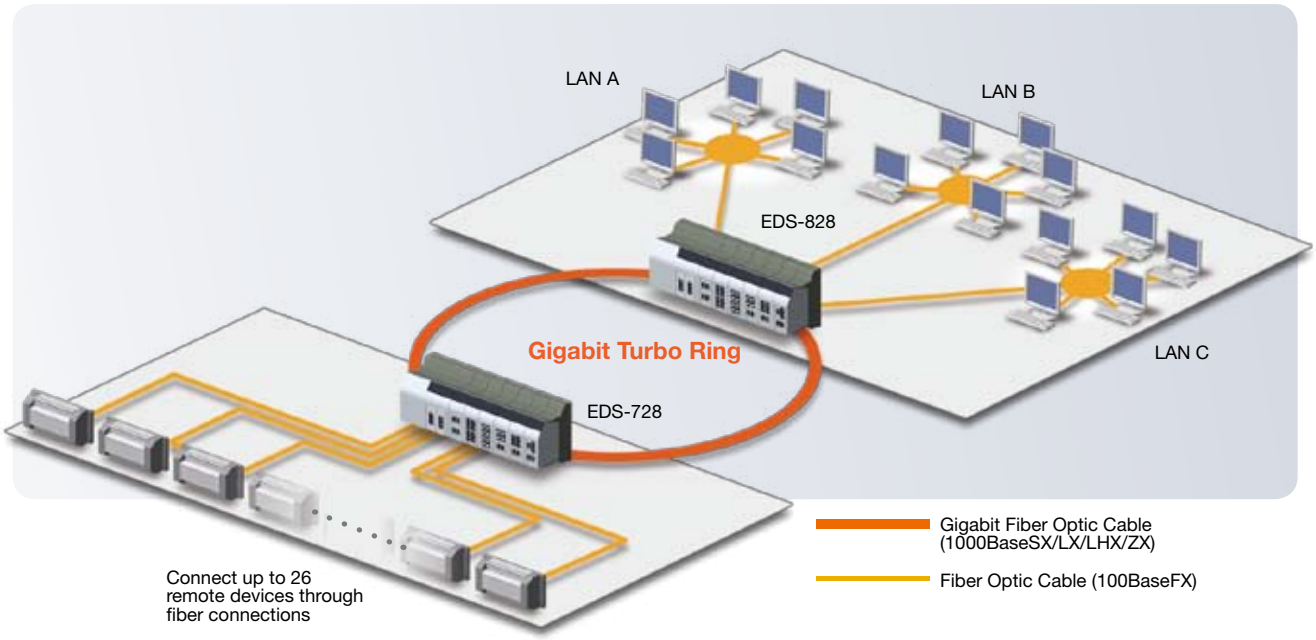
# Layer 3 Switching

Layer 3 switching is hardware-based and optimized to transmit data as fast as Layer 2 switching, but Layer 3 switching uses the IP address to make switching decisions, the same as a router. The 802.1Q VLAN of a Layer 2 switch allows network operators to configure and maintain networks more efficiently, but connecting from one VLAN to another requires using a traditional Layer 3 switch or router. Compared to software-based routers, Layer 3 switching provides a faster and less expensive way of using hardware to optimize IP switching between LAN segments such as corporate intranets. By using routing protocols and routing table to determine the best path, Layer 3 switching can direct network traffic and divide a large scale LAN into several subnets for better network performance.

FREE Download Layer 3 White Paper

www.moxa.com/support/white_papers




## Static Routing

Instead of using the MAC table of a Layer 2 Ethernet switch, a Layer 3 switch has a built-in IP routing table for forwarding IP frames. Network administrators need to configure and maintain this IP routing table manually.

## Routing Information Protocol (RIP)

In addition to static routing, Layer 3 switches also have a built-in IP routing table that can be set up and updated dynamically by routing protocol. RIP is an often used routing protocol that uses the Bellman-Ford algorithm and “hop count” measurement to determine how packets should be routed from one network to another.

## Open Shortest Path First (OSPF)

Layer 3 switches support OSPF, which uses “Link State” instead of “hop count” to determine the network route. Compared to RIP, OSPF has faster network convergence and less network traffic.

## Virtual Router Redundancy Protocol (VRRP)

VRRP is an Internet protocol that provides a way to keep one or more backup routers on standby when using a statically configured router on a local area network (LAN).

## Protocol Independent Multicast (PIM)

Protocol Independent Multicast (PIM) supports both Sparse Mode and Dense Mode. PIM Sparse Mode (PIM-SM) is designed to accommodate recipients of any multicast group who are sparsely distributed throughout the network. In order to receive multicast data, the Layer 3 switch must tell its upstream neighbors that they are interested in particular groups and sources. On the other hand, PIM Dense Mode (PIM-DM) is used when most subnets in the network want to receive every multicast packet. Multicast data is initially sent to all of the hosts on the network.

## Distance Vector Multicast Routing Protocol (DVMRP)

DVMRP is used to share information between routers to transport IP multicast packets between networks. The router generates a routing table for the multicast group that it knows about, along with the corresponding distances. When a multicast packet is received, it is forwarded as specified in the routing table.

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# Industrial Gigabit Ethernet Switches

**EDS-728/828 series** L2/L3 24+4G-port Modular Managed Ethernet Switches

**EDS-510A/518A series** 7+3G-/16+2G-port Managed Ethernet Switches

**EDS-G308 series** Full Gigabit 8G-port Unmanaged Ethernet Switches

Build Gigabit Networks for Real Time Video, Voice, and Data Transmission
• Upgrade your slower networks
• Compatible with existing Ethernet
• High flexibility: mixed GbE copper and SFP types
Video/Audio
Ethernet I/O / HMI
DCS / PLC / PAC
8 Gigabit
EDS-G308
MOXA

## Upgrade your Network Backbone to Gigabit Speeds

- Full compatibility with today's network
- Investment protection for future growth
- Rich media modules for application flexibility

## Support High Levels of Data and Real-time Network Traffic

For demanding applications such as traffic surveillance that require high-bandwidth networks, Gigabit Ethernet backbones have emerged as the preferred high-speed network solution for video, voice, and data transmission. Users no longer need to tolerate the slower response time or arrange multiple lines for different types of media access, and instead, only need to use a Gigabit network for supplying critical data in real-time and with high bandwidths.

In response to the need of high-traffic industrial applications for backbone switching, Moxa now offers a wide spectrum of Gigabit-enabled Ethernet switches that are capable of building a Gigabit backbone and network to link to the control center, video-over-IP equipments, Ethernet-enabled devices, or other Ethernet switches. Gigabit Ethernet switches offered by Moxa include the EDS-828, a Layer 3 24+4G-port modular Ethernet switch, the EDS-728, a Layer 2 24+4G-port modular Ethernet switch, the EDS-518A, a standalone 16+2G-port Ethernet switch, the EDS-510A, a standalone 7+3G-port Ethernet switch, and the EDS-G308, a standalone full Gigabit 8G-port unmanaged Ethernet switch.

## Complete Gigabit Ethernet Switch Solutions from Moxa

**EDS-728/828** Modular

L2/L3 24+4G-port Modular Gigabit Managed Ethernet Switches

24+4G Ports

**EDS-510A/518A** Standalone

7+3G-/16+2G-port Standalone Gigabit Managed Ethernet Switches

16+2G Ports

7+3G Ports

**EDS-G308** Standalone

Full Gigabit 8G-port Standalone Unmanaged Ethernet Switch

8G Ports

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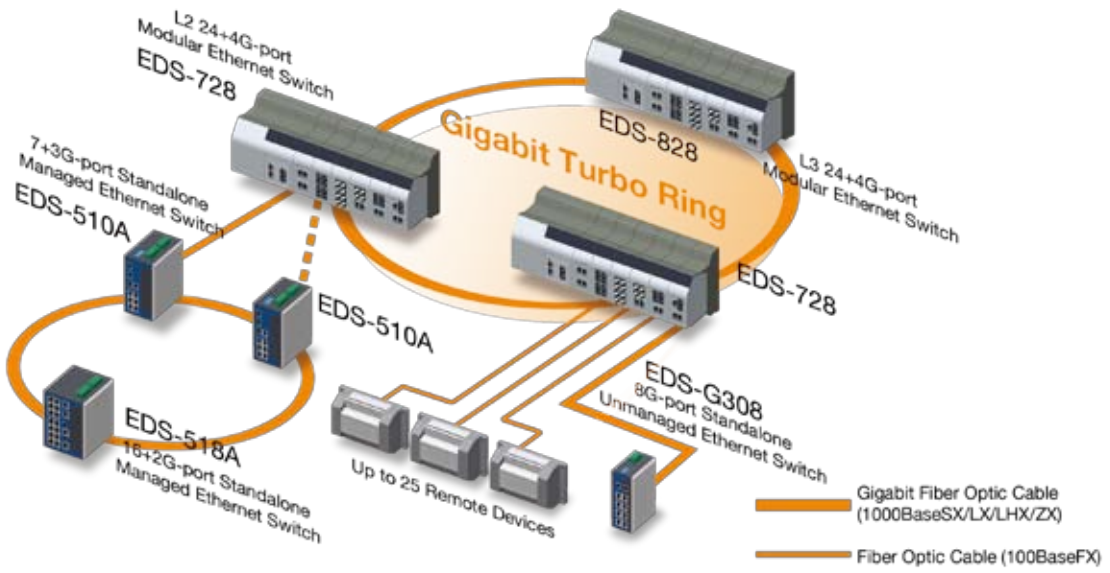
# Make Migration to Full Gigabit Ethernet Easy

**EDS-G308** Full Gigabit 8G-port Unmanaged Ethernet Switches

Moxa delivers a full Gigabit unmanaged Ethernet switch, EDS-G308, which is equipped with 8 Gigabit Ethernet ports with up to two selectable fiber optic SFP modules for the highest levels of data transmission. The EDS-G308 provides industrial grade features needed to withstand adverse conditions, such as -40 to 75°C operating range, redundant dual 12/24/48 VDC inputs, and rugged fiber optic support. The optimum balance of speeds, cost and long-term reliability allows you to easily upgrade your highly demanding network to full Gigabit speeds, while connecting your existing 10/100M Ethernet network.

- 8 Gigabit Ethernet ports with up to 2 Gigabit SFP fiber-optic ports
- -40 to 75°C operating range, redundant dual 12/24/48 VDC power inputs
- Scalability, reliability and cost effectiveness
- Relay warning for power failure and port break
- Innovative power-saving design cuts power consumption by up to 62%

## Multi-Gigabit Backbone Network




### Overview of Gigabit-enabled Ethernet Switches

| Model | Port Interface | | | Features | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | No. of Ports | Gigabit Ethernet (10/100/1000 Mbps) | Fast Ethernet (10/100 Mbps) | L3 switch-ing | Turbo Ring | RSTP/ STP | IGMP/ GMRP | Port Trunking | IEEE 802.1X | Port Lock | SNMP/ RMON | VLAN | QoS | ABC-01* |
| EDS-828 | 28 | 4 | 24 | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ |
| EDS-728 | 28 | 4 | 24 | | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ |
| EDS-518A | 18 | 2 | 16 | | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ |
| EDS-510A | 10 | 3 | 7 | | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ |
| EDS-G308 | 8 | 8 | — | Industrial rugged features with redundant power inputs and -40 to 75°C operating temperature range. | | | | | | | | | | |

* For ABC-01, please see page 10.

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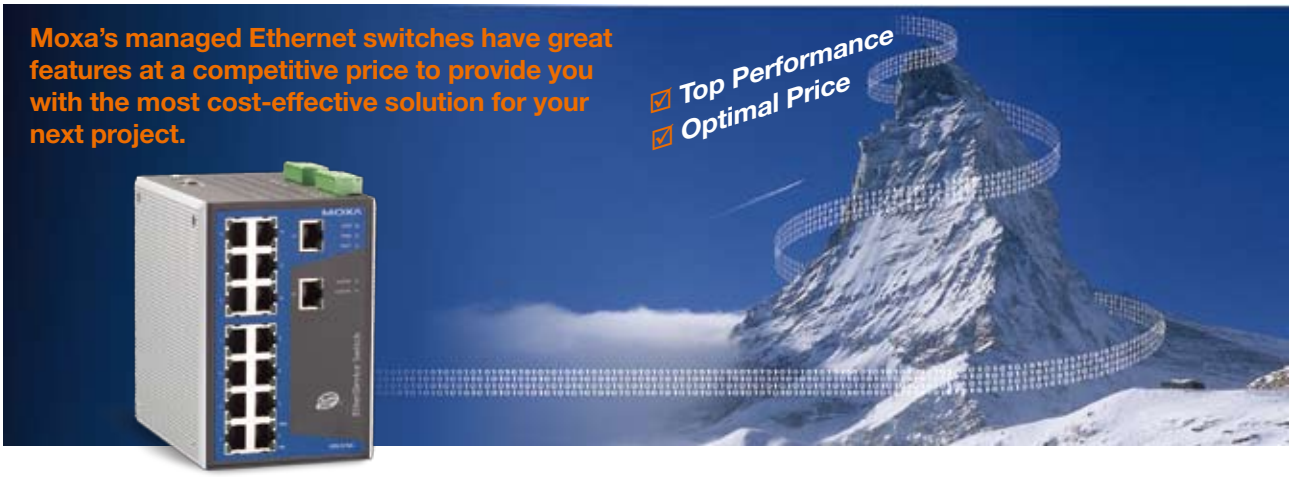
# Industrial Managed Ethernet Switches

**EDS-505A/508A/516A series** 5-, 8-, or 16-port Advanced Managed Ethernet Switches

**EDS-405A/408A series** 5- or 8-port Entry-level Managed Ethernet Switches


Moxa's managed Ethernet switches have great features at a competitive price to provide you with the most cost-effective solution for your next project.
Top Performance
Optimal Price

## Unrivaled Price-to-Performance Ratio for Managed Ethernet Switches

- **Plug-n-play Turbo Ring (recovery time < 20 ms)**
- **Advanced managed and security features**
- **Rugged design with -40 to 75°C operating range**

## Smart Functions, Economic Solution

The EDS-405A/408A series of entry-level Ethernet switches are the most affordable managed Ethernet switches with network redundancy and smart managed functions in just one economic switch. They are designed to be cost-effective for a broad range of networking applications for which basic managed functions are required. Designed for industrial applications, these plug-n-play switches have wide temperature models (-40 to 75°C), redundant power inputs, high MTBF, automated alarm warning by email or relay, and a 5-year warranty for reliable operation.

### EDS-405A/408A Series

Entry-level 5- and 8-port Managed Ethernet Switches

- Plug-n-play Turbo Ring with fast recovery time under 20 ms
- QoS, port-based VLAN, SNMPv1/v2c/v3, RMON supported
- Automatic warning by exception through e-mail, relay output
- User-friendly web-based configuration and management

EDS-405A EDS-408A

## Superior Switch Management and Security

The EDS-500A series of advanced Ethernet switches allow industrial customers to deploy Ethernet with better network management and security parameters. Several critical management functions include 802.1Q VLAN for easy network planning, QoS to increase determinism, IGMP snooping/GMRP for filtering multicast traffic, Port Trunking for flexible network connections, Port Locks for blocking unwanted invasion and usage, and IEEE 802.1X, HTTPS, and SSH for network security. Models are available with extended operating temperature (-40 to 75°C) and long-haul transmission of up to 80 km.

### EDS-505A/508A/516A Series

Advanced 5-, 8-, and 16-port Managed Ethernet Switches

- Plug-n-play Turbo Ring with fast recovery time under 20 ms
- QoS, IGMP snooping/GMRP, VLAN, LACP, SNMPv1/v2c/v3, RMON supported
- IEEE 802.1X, HTTPS, and SSH enhance network security
- Support long haul transmission of up to 80 km

EDS-505A EDS-508A EDS-516A

### Overview of Managed Ethernet Switches

| Model | Port Interface | Features | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Fast Ethernet (10/100 Mbps) | Turbo Ring | RSTP/ STP | IGMP/ GMRP | Port Trunking | IEEE 802.1X/ HTTPS/SSH | Port Lock | SNMP/ RMON | 802.1Q VLAN | Port-based VLAN | QoS | ABC-01 (see P10) |
| EDS-516A | 16 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| EDS-508A | 8 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| EDS-505A | 5 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| EDS-408A | 8 | ✓ | ✓ | | | | | ✓ | | ✓ | ✓ | ✓ |
| EDS-405A | 5 | ✓ | ✓ | | | | | ✓ | | ✓ | ✓ | ✓ |

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# Moxa Turbo Ring

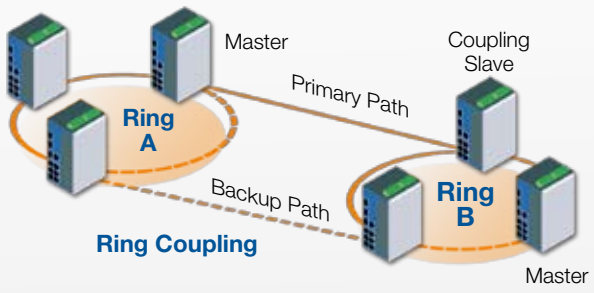
## Self-healing Ring Topology

To minimize downtime from any network segment failure, Moxa introduced the self-healing Turbo Ring technology to ensure constant communication for your network connections. With Moxa's Turbo Ring, if any segment of the network gets disconnected, your automation system will be back to normal in under 20 milliseconds at a full load of 250 Ethernet switches.

FREE Download Turbo Ring White Paper

www.moxa.com/support/white_papers

A variety of topologies are supported using Moxa Turbo Ring to reduce network planning costs. Options include ring coupling, dual-ring, and dual-homing.

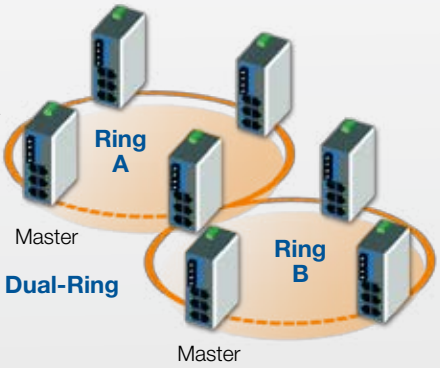



## Ring Coupling

For some systems, it may not be convenient to connect all managed Ethernet switches in the system to create one big redundant ring, since some devices could be located at a remote site. Turbo Ring's "Ring Coupling" function helps you separate those distributed Ethernet switches into different smaller redundant rings, without any control line, but in such a way that the smaller rings will still be able to communicate with each other.

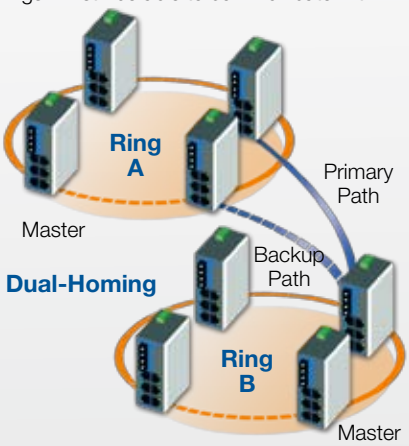
## Dual-Ring

The Dual-Ring function can also add reliability by allowing a single EDS managed Ethernet switch to connect two separate rings for applications that present cabling difficulties.



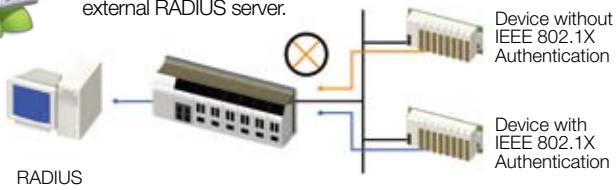

## Dual-Homing

You can configure the network for Dual-Homing, which involves coupling two separate rings with a single EDS managed Ethernet switch connecting to two independent connection points.



## IEEE 802.1X for Secure User Authentication

IEEE 802.1X (port-based network access control) is designed to enhance the security of your network. It provides an authentication framework to allow authenticated users to access the port. Authentication is done using the local user database, or external RADIUS server.




## HTTPS and SSH for Enhanced Secure Network

HTTPS and SSH allow data to be exchanged over the internet in an encrypted form. The encryption provides confidentiality to protect data from being intercepted, and helps build a secure communication network.

## Hassle-free Solution to Back up Your Network Configuration

**Plug ABC-01 into the RS-232 console port of your MOXA managed Ethernet switches now!**

**ABC-01 Automatic Backup Configurator via RS-232 Console Port**

- Complete configuration storage, including the IP address for one Ethernet switch
- Automatic loading of system configuration after system reboot
- Portable low-power design that doesn't need a power supply

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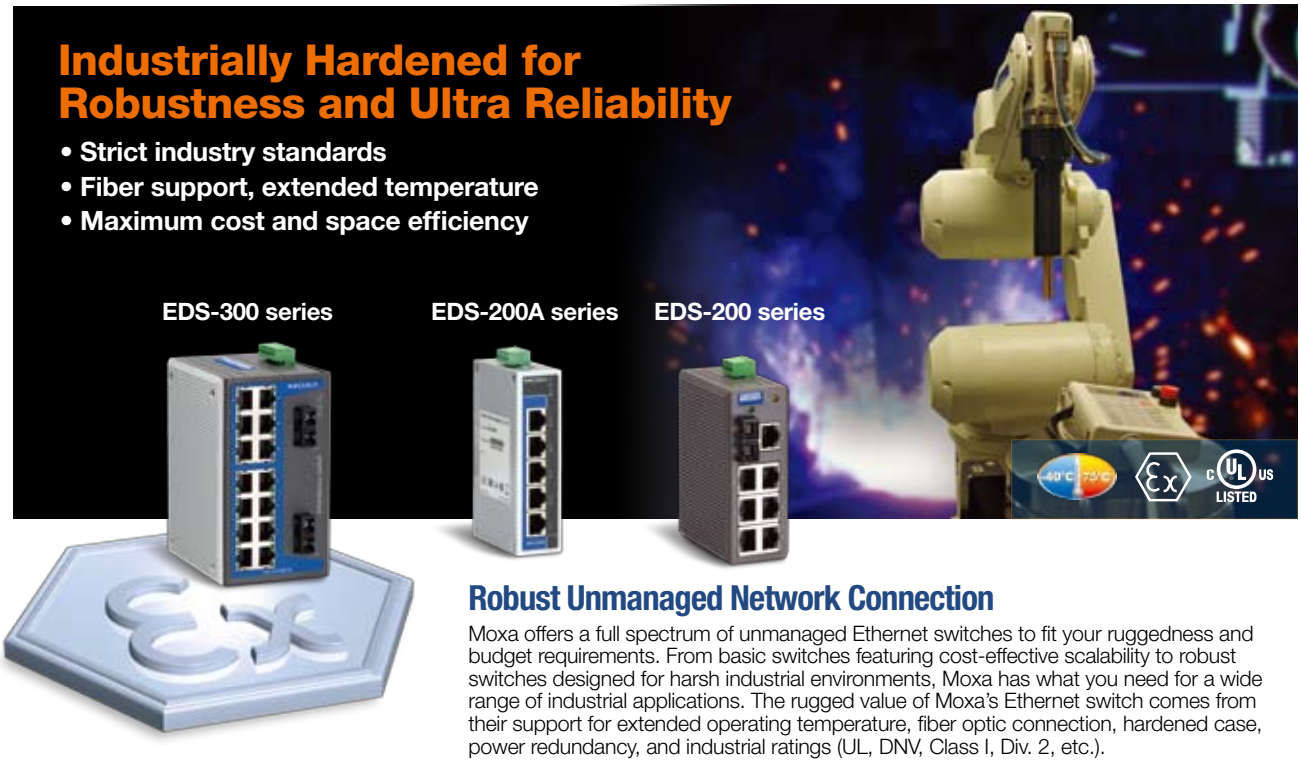
# Industrial Unmanaged Ethernet Switches

**EDS-305/308/309/316** 5-, 8-, 9-, or 16-port Advanced Unmanaged Ethernet Switches

**EDS-205A/208A** 5- or 8-port Unmanaged Ethernet Switches with Metal Casing

**EDS-205/208** 5- or 8-port Entry-level Unmanaged Ethernet Switches




## Robust Unmanaged Network Connection

Moxa offers a full spectrum of unmanaged Ethernet switches to fit your ruggedness and budget requirements. From basic switches featuring cost-effective scalability to robust switches designed for harsh industrial environments, Moxa has what you need for a wide range of industrial applications. The rugged value of Moxa's Ethernet switch comes from their support for extended operating temperature, fiber optic connection, hardened case, power redundancy, and industrial ratings (UL, DNV, Class I, Div. 2, etc.).

## Buyer Guide Lights up Your Choice

| Products | EDS-300 Series | EDS-200A Series | EDS-200 Series |
|---|---|---|---|
| | | | |
| **Application Needs** | • Perfect for hazardous industrial applications, including maritime, mines, oil refineries, and other industrial settings<br>• Applications that require the most robust and safe unmanaged Ethernet switch solutions | • Designed especially for applications with limited space and industrial requirements, such as a metal case, redundant power with wide power inputs<br>• Applications that need an entry-level Ethernet switch with an enhanced, rugged design | • Ideal for basic industrial applications<br>• Suitable for simple industrial applications that need entry-level industrial features at inexpensive prices |
| **Moxa's Solutions** | | | |
| No. of ports | 5, 8, 9, or 16 ports | 5 or 8 ports | 5 or 8 ports |
| Dimensions (W x H x D) | Standard size<br>5/8/9-port: 53.6 x 135 x 105 mm<br>16-port: 80.5 x 135 x 105 mm | Slim<br>5-port: 30 x 115 x 70 mm<br>8-port: 50 x 115 x 70 mm | Pocket size<br>5-port: 25 x 100 x 74 mm<br>8-port: 40 x 100 x 74 mm |
| Power Range | 12 to 45 VDC | 9.6 to 60 VDC, 18 to 30 VAC | 12 to 45 VDC, 18 to 30 VAC |
| Redundant Power | ✔ | ✔ | — |
| Operating Temperature | -40 to 75°C | -10 to 60°C | -10 to 60°C |
| Housing | Metal, IP30 | Metal, IP30 | Plastic, IP30 |
| Standards | UL, CI D2/ATEX Zone 2, DNV/GL, CE, FCC | UL, CE, FCC | UL, CE, FCC |

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Advanced Level

Entry Level

## Ultimate Reliability, Hazard-free Operation

Moxa's EDS-300 series of advanced unmanaged Ethernet switches are safe for use in hazardous locations. These industrially hardened products meet UL/cUL CI D2, ATEX CI Z2 for oil and gas industry, and DNV/GL for maritime and offshore use. Additional toughness includes -40 to 75°C operating range and redundant dual 24 VDC power inputs.

### EDS-305/308/309/316 Series

**Advanced 5-, 8-, 9-, and 16-port Unmanaged Ethernet Switches**

- Low or high port density with a combination of fiber and copper
- Class 1 Div. 2/ATEX Zone 2 and DNV/GL certifications
- Redundant dual 24 VDC and -40 to 75°C operating

## Industrial Reliability, Optimal Price

The EDS-200A series of entry-level unmanaged Ethernet switches are housed in slim IP30 metal cases for durability. The enhanced robustness is offered by dual redundant AC/DC power inputs and a -10 to 60°C operating range that give users greater reliability and flexibility for various industrial applications, but at no additional cost.

### EDS-205A/208A Series

**Rugged 5- and 8-port Unmanaged Ethernet Switches**

- Slim form factor with IP30 metal housing
- Redundant power inputs: 12/24/48 VDC and 18 to 30 VAC
- -10 to 60°C operating range and DIN-Rail mounting

## Basic Ruggedness, Economical Solutions

Moxa's EDS-200 series of entry-level unmanaged Ethernet switches are low-cost, space-saving solutions. Compared with commercial unmanaged switches, the EDS-200 series are characterized by a high MTBF and AC/DC power inputs that make these plug-and-play Ethernet switches more reliable and well-suited for entry-level industrial application.

### EDS-205/208 Series

**Entry-level 5- and 8-port Unmanaged Ethernet Switches**

- Small form factor ideal for limited space
- Power inputs supporting 12 to 45 VDC and 18 to 30 VAC
- -10 to 60°C operating range and DIN-Rail mounting

## Overview of Unmanaged Ethernet Switches

| Model | Port Interface | | | Features | | | Approvals | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | No. of Ports | Max. 10/100 BaseT(X) | Max. 100FX | Alarm Contact | Power Redundancy | Operating Temp. | UL/cUL 60950-1 | UL508 | UL/cUL Class I, Div. 2; ATEX Class I, Zone 2 | DNV/ GL |
| EDS-316 | 16 | 16 | 2 | ✔ | ✔ | -40 to 75°C | ✔ | ✔ | △ | ✔ |
| EDS-309 | 9 | 6 | 3 | ✔ | ✔ | -40 to 75°C | ✔ | ✔ | ✔/△ | ✔ |
| EDS-308 | 8 | 8 | 2 | ✔ | ✔ | -40 to 75°C | ✔ | ✔ | ✔/△ | ✔ |
| EDS-305 | 5 | 5 | 1 | ✔ | ✔ | -40 to 75°C | ✔ | ✔ | ✔ | ✔ |
| EDS-208A | 8 | 8 | 1 | - | ✔ | -10 to 60°C | | △ | | |
| EDS-205A | 5 | 5 | - | - | ✔ | -10 to 60°C | | △ | | |
| EDS-208 | 8 | 8 | 1 | - | - | -10 to 60°C | ✔ | ✔ | | |
| EDS-205 | 5 | 5 | - | - | - | -10 to 60°C | | ✔ | | |

✔ :Available, △:Pending, please check Moxa's website for the most up-to-date certification status.

## Class I Division 2/Zone 2

Most Moxa products have been tested for safe and reliable operation in hazardous locations in accordance with strict, internationally recognized standards, including UI/cUL Class I, Division 2, Groups A, B, C, and D & ATEX Class I, Zone 2, Ex nC IIC.

**Class I Locations:**

These locations are defined as places where the air may contain flammable gases or vapors in sufficient quantities to cause explosive or ignitable mixtures.

**Division 2:**

The division defines the conditions under which the hazard exists. Division 2 refers to the following conditions:

1. Liquids and gases in closed containers or systems are handled, processed, or used.
2. Concentrations are normally prevented by positive mechanical ventilation.
3. The specified area is adjacent to a Class I, Division 1 location.

**Zone 2:**

This is defined as an environment where an explosive gas atmosphere is not likely to occur during normal operation, but could occasionally arise for brief periods of time.

## DNV

The ship classification system offered by DNV (Det Norske Veritas) promotes the safeguarding of life and property in maritime environments. Devices intended for use on ships and offshore units obtain DNV Type Approval by fulfilling a set of requirements for design, construction, and operation.

DNV certification is globally recognized as an indication of a device's fitness for marine environments, and confirms a device's ability to withstand temperature, humidity, vibration, EMC, and other stresses, as well as its suitability for different, well-defined classes of marine environments.

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# M12 Ethernet Switches

**EDS-305-M12 series** 5-port M12/IP67 Unmanaged Ethernet Switches

M12 Shielded Ethernet Switch
Stands up to Continued Vibration
• M12 close-fit connectors
• Rugged IP67 protection
• -40 to 75°C operating temperature

## Built for Tough Environments

The EDS-305-M12 series unmanaged Ethernet switches provide a strong tolerance to constant vibration, dust and humidity. Its 4-pin M12 connectors ensure a tight fit and keep your Ethernet connections from popping loose when the Ethernet switches are used with high-vibration applications, such as in moving vehicles. The robust casing provides IP67 protection against water, moisture, oil, and dust. The EDS-305-M12 switches are designed to be mounted directly on a machine or field surface, without requiring extra protection, even in extreme outdoor conditions. The perfect mix of wide temperature range (-40 to 75°C), protection level, and mechanical stability makes the EDS-305-M12 series a natural fit for all tough workplaces.

Moving Vehicles

### EDS-305-M12 Series

5-port Unmanaged Ethernet Switches with M12 Connectors

- 10/100BaseT(X) with 4-pin M12 (D-coding) connectors
- IP67 rated housing for protection against water and dust
- Versatile power inputs of 12 to 45 VDC or 18 to 30 VAC
- Wide operating temperature range of -40 to 75°C

Dusty and Humid Environments

## M12 Connector

The RJ45 Ethernet connector has long been the standard for office networks, but it is not rugged enough for harsh industrial environments. In fact, no universally recognized standard connector exists for industrial Ethernet applications. Connector design is influenced by factors such as the presence of vibration, shock, dust, and moisture. For heavy duty installations, Ethernet connectors are based predominantly on the M12 form factor. M12 connectors have a robust metal construction with IP65 or IP66 protection, making this type of connector well-suited for harsh environments. Current Modbus-IDA guidelines specify that RJ45 connectors should be used for light duty applications and that 4-pin M12 connectors should be used for heavy duty installations. PROFINET also specifies RJ45 connectors for light duty applications and M12 or industrial RJ45 connectors for heavy duty applications.

## IP67/68

An “IP number” is used to specify the level of environmental protection provided by enclosures surrounding electronic equipment. The IP number consists of two digits. The first digit refers to protection against solid objects, and the second digit refers to protection against liquids. The higher the number, the better the protection.

- 6: Indicates complete protection against dust
- 7: Indicates protection against the effects of being temporarily submerged in water
- 8: Indicates protection against the effects of constant submersion in water

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# Power-over-Ethernet Switches

**PX-1510 series** 7+3G-port Gigabit PoE Managed Ethernet Switches

**EDS-P308 series** 8-port PoE Unmanaged Ethernet Switches

## Industrial PoE Switches Simplify Security and Remote Network Connections

- **Power any IEEE802.3af-compliant device**
- **Space and cost saving deployment**
- **Reduce wiring costs and complexity**
- **-40 to 75°C operating temperature**

Moxa's industrial PoE switches provide up to 15.4 watts of power per PoE port. The simplicity of merging data and electric power into one Ethernet cable reduces the complexity and costs of field wiring for industrial network connections, and further makes PoE switches well suited to areas where AC power is not readily available or cost-prohibitive, such at remote areas of the industrial applications.

## Managed Gigabit PoE Switch

Moxa has added a Gigabit managed PoE switch (the PX-1510) to its growing line of Power-over-Ethernet switches. The PX-1510 comes standard with 4 10/100BaseT(X) PoE ports and 3 combo Gigabit Ethernet ports, making it suitable for applications such as traffic surveillance, where up to four IP cameras can be connected to a single PX-1510 switch. SFP fiber optic is supported to secure remote, high bandwidth transmission to the control center. Up to 3 Gigabit ports can be used to form a redundant Gigabit ring and uplink. The unique combination of dual redundant power supplies, -40 to 75°C operating range, and Moxa's Turbo Ring redundancy ensures high network availability if a link or device fails.

### PX-1510

7+3G-port Gigabit PoE Managed Ethernet Switch

- 4 IEEE 802.3af compliant PoE ports
- Intelligent power consumption detection, classification and PoE scheduling functions
- Support Turbo Ring, advanced managed and security features
- 3 combo Gigabit ports, 2 ports for redundant ring and 1 port for uplink

## The PoE Capable Smart Switch

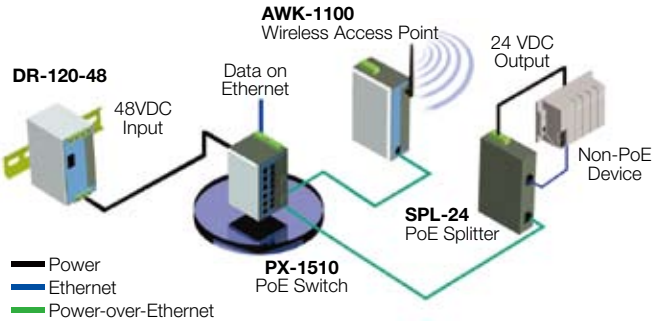
The EDS-P308 is a smart, 8-port unmanaged Ethernet switch that provides up to 15.4 watts of power per PoE port on ports 1 through 4 to power an IEEE802.3af-compliant device. The remainder of the ports uses either copper or fiber for data transmission. The EDS-P308 switch features -40 to 75°C operating range suitable for use in hostile industrial environments.

### EDS-P308

Industrial 8-port PoE Unmanaged Ethernet Switch

- Four IEEE802.3af-compliant PoE ports
- Single-mode or multi-mode optical fiber port
- Intelligent power consumption detection and classification
- Redundant dual 48 VDC, -40 to 75°C operating range

**SPL-24**
IEEE802.3af-compliant PoE Splitter

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# Active Ethernet I/O

**ioLogik E2000 series** Active Ethernet I/O

Ready to Run Intelligent Active Ethernet I/O
• Simple Click&Go control logic
• Active alarm messages with timestamp
• Versatile event alerts
• Wide selection of I/O types
Event-response Logic
e-mail/SNMP trap/SMS

## Migrate to the Active Ethernet I/O Era

Moxa's Active Ethernet I/O is a new concept that delivers active, event-response-based reporting and control of I/O devices to the PC-based data acquisition and control field. The I/O status of an Active Ethernet I/O system can be reported automatically based on user-specified conditions. The report-by-exception approach requires far less bandwidth than the traditional polling approach. Critical sensor data can be obtained immediately with real-time stamp instead of being confined to specific points of time, as determined by the polling intervals. Active Ethernet I/O makes your I/O signal networks more concise and efficient, and saves a lot of bandwidth compared with the polling architecture.

### Local Intelligence Simplifies I/O Control

Traditional PC-based remote I/O often requires high-end host computers and complicated programming to achieve data polling over several I/O points, which often results in delayed data acquisition and event messaging. Moxa's Active Ethernet I/O is different in that it features Click&Go control intelligence, which does not require programming. What you get is a system that processes I/O data locally to simplify the complicated I/O polling structure.

### Event-driven Logic Reduces Bandwidth Consumption

Network bandwidth is a critical problem for real-time I/O monitoring and control systems, since the polling used by traditional I/O system consumes a lot of bandwidth. Some popular schemes for reducing bandwidth loading make use of microwave, satellite, and dial-up communications. The new Active I/O architecture with active event response can reduce network traffic substantially and better utilize the available bandwidth.

### Precise Alarm Messages for Easy Troubleshooting

Active Ethernet I/O puts a real-time timestamp on each alarm message, providing precise event information, location, I/O status, sever name, and I/O channel to facilitate future tracking. In addition, Active Ethernet I/O allows alarms to be triggered based on more than one sensor input, which helps by reducing the occurrence of false alarms.

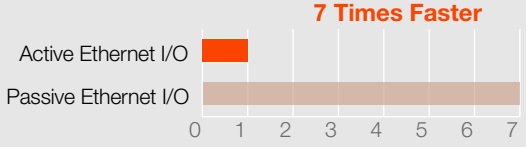
## Critical Tests Say It Best

### Test I: Network Traffic Comparison

This test was done with 32 pcs of ioLogik E2210 with 640 DI/O points. As shown in the figure, the Active Ethernet I/O can save 80% of bandwidth consumption than passive Ethernet I/O.

### Test II: Response Time for I/O Status

This test was conducted with 128 pcs of ioLogik E2210 with 2560 I/O points. As shown in the figure, the active architecture is 7 times better than the passive architecture in reponse time when the I/O status is changed.

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# New Generation Click&Go Logic

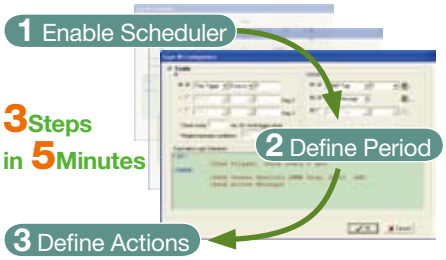
## Easy I/O Control Logic—Just Click&Go

New generation Click&Go Logic is a powerful yet ultra-simple I/O control logic. Anyone who understands basic IF-THEN-ELSE statements can easily get started with Click&Go logic in less than 5 minutes, without any training, and without any programming effort. New generation Click&Go Logic supports the most popular control functions, such as delay, timer, scheduler, internal register, remote actions, and CGI commands, to fulfill most of the requirements for your remote monitoring and control system.

### New Generation Click&Go Logic

- Simple IF-Then-Else configuration logic
- Rich and affordable control functions
- User-defined alarm messages with real-time stamp
- Event reporting via TCP, UDP, e-mail, and SNMP trap
- Import/export for control logic and configuration

### Simplifies I/O configuration



## Natural-language-based Logic for I/O Control

**Deploy an Intuitive Configuration Interface**

FREE Download Flash Tutorial

www.moxa.com/flash/Click_n_Go

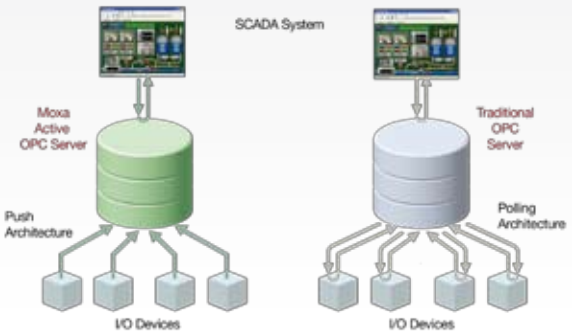
The development of user-friendly configuration interfaces has been a trend not only for IT products, but also for industrial automation solutions. Intuitive logic is applied to eliminate the gap between trained engineers and untrained users. However, applications such as I/O monitoring and control might require using a lot of different parameters, which makes it much more difficult to develop a friendly UI. The Click&Go design brings an IT-friendly interface to industrial automation. By featuring a user-friendly control logic, even untrained technical people can easily configure Click&Go logic without additional training, making it the friendliest I/O monitoring and control system available today.

## Smart, Active OPC Server —From Pull to Push

OPC servers can easily integrate Ethernet I/O devices into your existing HMI/SCADA system. Traditionally, OPC servers only supported the "pull" architecture for I/O devices. What this means is that your HMI/SCADA system used a continuous polling method to collect relevant data. Moxa's Active OPC server with non-polling architecture supports the standard OPC protocol and offers event-driven, active communication between Active Ethernet I/O and your HMI/SCADA software. Administrators can benefit from the push communication to provide the HMI/SCADA system with real-time signals when the I/O status is changed, to provide the best bandwidth-saving solution.

**Active OPC server can reduce network traffic by at least 50%**

**Upgrade your HMI/SCADA system with a brand-new Active architecture**




## Wide Selections of Active Ethernet I/O Products

### Analog I/O

**E2240** (8 AI, 2 AO)
- AI: 16-bit analog input (+/- 150 mV, +/- 500 mV, +/- 5V, +/- 10V, 0-20 mA, 4-20 mA)
- AO: 12-bit analog output (4-20 mA, 0-10V)

**E2242** (4 AI, 12 Configurable DI/O)
- Adjustable sampling rate
- 4-20 mA, 0-10V

**E2260** (6 RTD, 4 DO) RTD
- 16-bit resolution
- Pt, JPt, Ni, RTD sensor, Resistor

**E2262** (8 TC Input, 4 DO) TC
- 16-bit resolution
- J, K, T, E, R, S, B, N types TC & mV

### Digital I/O

**E2210** (12 DI, 8 DO)
- DI or Counter
- DI Dry or Wet Contact (NPN)
- DO or Pulse Output

**E2212** (8 DI, 8 DO, 4 Configurable DI/O) Configurable
- DI Dry or Wet Contact (NPN/PNP) sensors

**E2214** (6 DI, 6 Relay) Relay
- 6 Form A, relay outputs
- Relay: 5A/250 VAC, 5A/30 VDC

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# High Density, Slice Form Factor Remote I/O

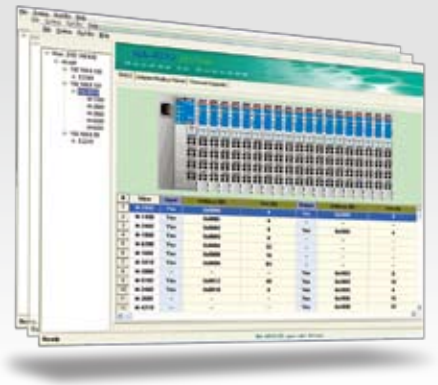
Moxa's ioLogik 4000 series of modular remote I/O solutions features a versatile modular package that can accommodate a variety of DIO and AIO modules, creating a wide array of data acquisition solutions for your applications. With this slim, plug-n-play and easy to use modular remote I/O product, a large amount of sensor data and several analog or digital devices can be monitored or controlled simultaneously over Ethernet or RS-232/485.

## ioLogik 4000 Series

Flexible Remote I/O Solutions with Various I/O Modules

- Ethernet, RS-485, RS-232 communication interfaces
- Over 40 types of I/O modules are available
- Expandable with up to 32 modules
- Maximum of 512 DI/O channels or 124 AI/O channels
- Compatible with standard Modbus TCP/RTU/ASCII and most SCADA software
- Easy-to-use management software and DLL library

## What You See is What You Install!



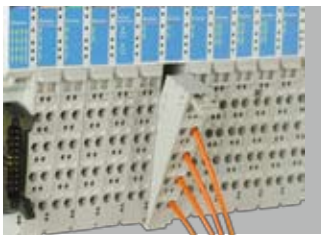
The ioAdmin allows you to configure and monitor ioLogik 4000 modular I/O remotely. ioAdmin automatically detects the installed ioLogik Ethernet I/O and presents the installation sequence of the I/O modules. ioAdmin also detects and generates a Modbus address table, which can be printed or stored on a computer for SCADA software configuration.

The utility also allows you to:

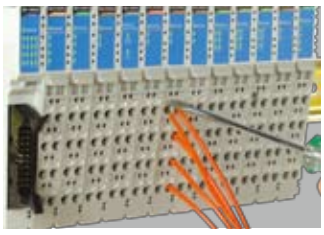
1. Automatically search for installations
2. Look for help using online documentation
3. Generate reports of I/O combinations

## Easy Installation and Maintenance

Slice Type I/O Modules



Removable Terminal Block



Spring Type Terminal Block

Module Coding Tag

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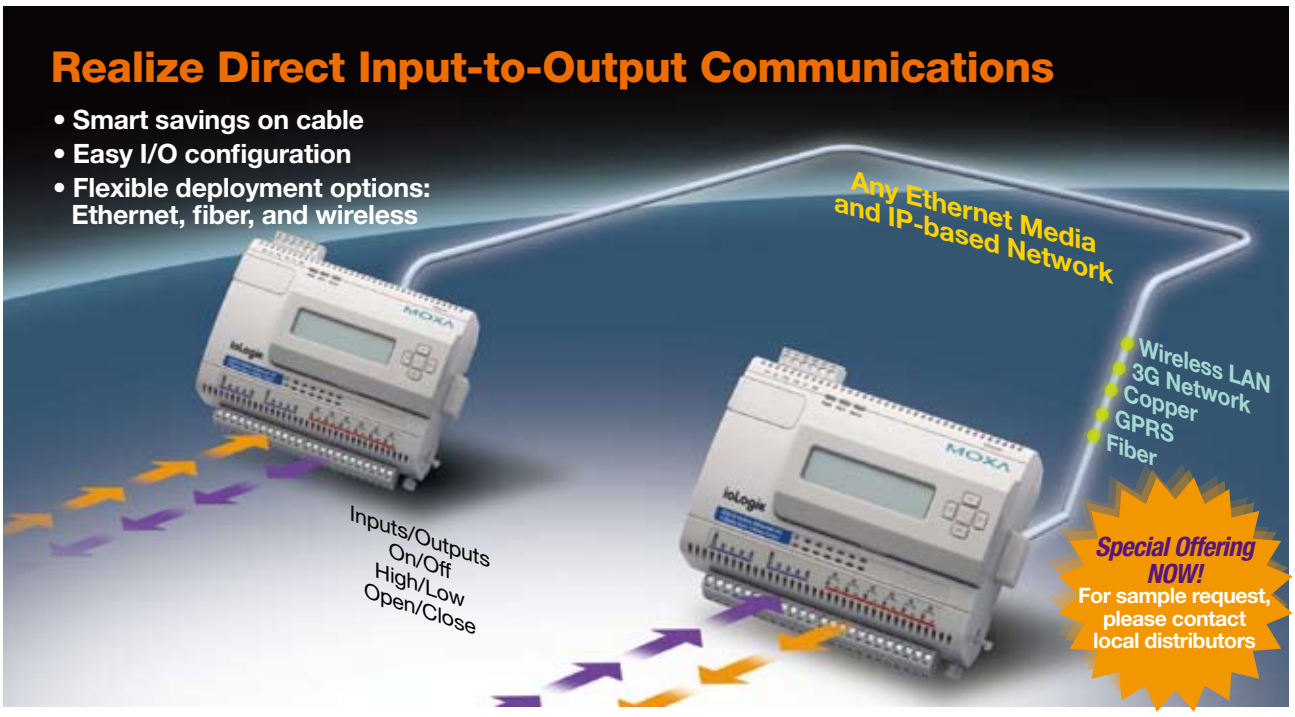
# Peer-to-Peer I/O

**ioMirror E3210** Ethernet Peer-to-Peer I/O with 8 DI, 8 DO




## Cabling over IP

Do you have problems with complicated I/O cabling? Wiring is a cost-critical issue as well as a factor that can cause future maintenance problems when planning a remote I/O monitoring and control system. This is because a number of wires from I/O devices connect to different controllers to form an intricate communications network. Moxa's ioMirror Ethernet I/O can solve all of these troubles with the capability of mirroring remote sensor signals to remote PLC controllers, DCS systems, or display devices over IP networks, without installing additional signal wires.

## Transmit all I/O Signals over IP Networks

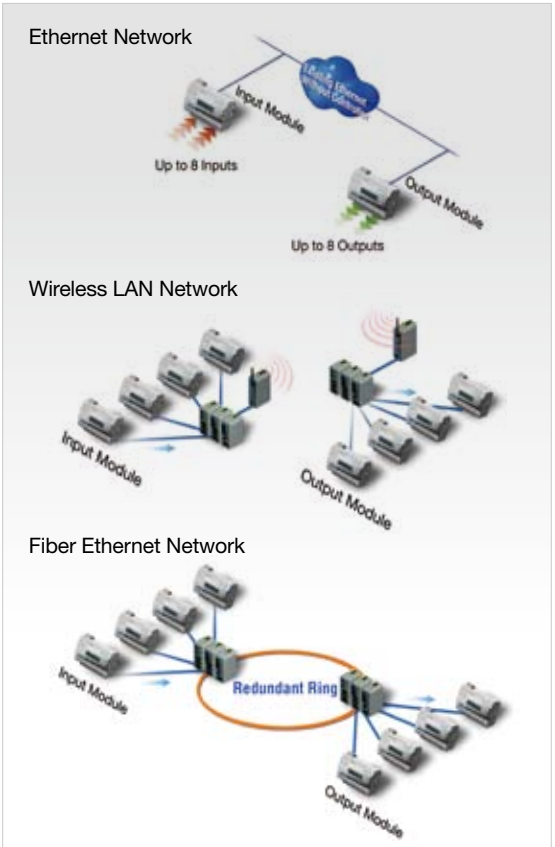
The ioMirror E3210 is designed as a cable replacement solution that sends input signals to remote outputs over an IP network. Configuration is easy with the built-in ioMirrorAdmin, web-based management utility, or optional LCD attachment. The ioMirror E3210 has a 24 VDC alarm output channel that can be triggered when communication fails. Users are allowed to connect the alarm port to a buzzer, flashlight, or even back to a PLC for continuous monitoring over the SCADA system. In addition, the ioMirror can split input signals simultaneously into two digital output channels to ioMirrors located in two different areas.

### ioMirror E3210 Series

Ethernet Peer-to-Peer I/O with 8 digital inputs and 8 digital outputs

- Direct input-to-output signal communication over IP
- Physical alarm port to trigger buzzer or lamp
- Simultaneously send input signals to two locations
- PC-free configuration with LCD display kit
- Modbus/TCP supported for remote monitoring

### ioMirror in Different Network Infrastructures

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# Industrial IP Video Surveillance Solutions

| | |
|---|---|
| **VPort 351/354/254 series** | 1- or 4-channel MJPEG/MPEG4 Industrial Video Encoders |
| **VPort D351 series** | 1-channel MJPEG/MPEG4 Industrial Video Decoders |
| **VPort 25 series** | IP66 Fixed Dome IP Camera for Outdoors |

VPort 25

Build Industrial Grade IP Video Surveillance
• Wide temperature, redundant power, high MTBF, and fanless design
• Real-time streaming video and advanced compression technology
• Advanced IGMP Multicast and QoS protocols
c UL us LISTED
NEMA TS2
DNV
-40°C
75°C

VPort 254

## Migrate to IP Surveillance Suited for Industrial Applications

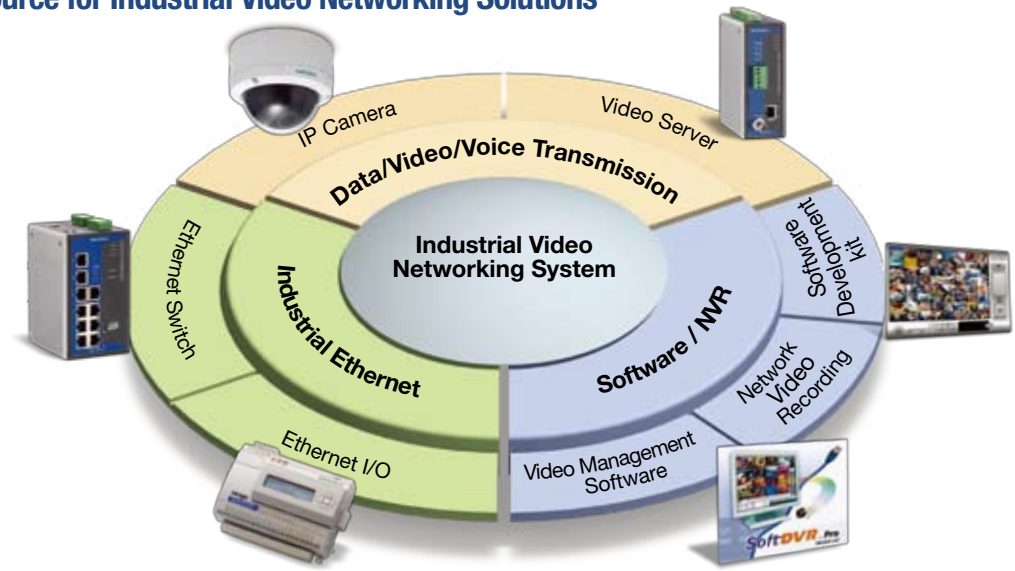
Due to the ever increasing interest in IP networks as well as advanced video digitization and compression technologies, such as MPEG4 and MJPEG, CCTV surveillance systems are migrating towards using IP-based platforms for real time data transmission. Moxa offers complete IP video surveillance solutions, including video encoders, video decoders, IP cameras, and user-friendly IP surveillance software that lets you take full control of field cameras and traditional CCTV systems. These products offer state-of-the-art compression technology to ensure transmission efficiency and superior image quality suited to rigorous surveillance needs.

## Designed to Meet the Challenges of Any Industrial Environment

Most video surveillance products are installed in severe outdoor conditions, and for this reason Moxa's video-over-IP products pack many industrial features that include wide operating temperatures, redundant power inputs, robust hardware protection, and optional fiber-optic support. In particular, IP camera with IP66 protection and a high-quality day/night lens is the best choice for outdoor surveillance.

www.moxa.com/support/white_papers

## Your One Source for Industrial Video Networking Solutions

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# Full Range of IP Video Surveillance Solutions

## Industrial-strength IP Video Products

### 1 Outdoor IP Camera

**VPort 25**

IP66, Day-and-Night Vandal-Proof Fixed Dome IP Camera

- -40 to 50°C operating temperature; no heater and fanless
- IP66-rated for protection from rain and dust
- Direct-wired power input and PoE for power redundancy
- Up to 30 FPS at full D1 (720 x 480) resolution
- One camera lens for both day and night use

### 2 Industrial Video Encoders

**VPort 351/354/254**

1- or 4-channel MJPEG/MPEG4 Industrial Video Encoders

- Up to 30 FPS at full D1 (720 x 480) resolution (VPort 351/254); up to 120 FPS at 4CIF (704 x 480) resolution (VPort 354)
- 2-way (1 in/ 1 out) audio supported
- Multicast (IGMP), RTSP, QoS, SNMP, ModBus/TCP (VPort 354) supported
- Industrial design: -40 to 75°C operating, fiber optic support, and 12/24 VDC and 24 VAC redundant power inputs
- 2 Ethernet ports for cascade and port redundancy (VPort 354)

### 3 Industrial Video Decoder

**VPort D351**

1-channel MJPEG/MPEG4 Industrial Video Decoder

- Decode MJPEG/MPEG4 video streams to analog video signals automatically
- Manual selection or automatic scan with up to 64 video sources
- 12/24 VDC and 24 VAC redundant power inputs
- 2-way (1 in/ 1 out) audio supported
- Transparent PTZ control with legacy PTZ controller

## User-friendly Video-over-IP Surveillance Software

### 4 Advanced IP Surveillance Software

**SoftNVR**

64-channel IP Surveillance Software for Medium to Large Systems

- Multi-screen viewing format (maximum of 64 channels)
- Dual monitor capability
- Video analytics and instant response
- Video quality enhancement tools
- Intelligent and convenient search for locating recorded video

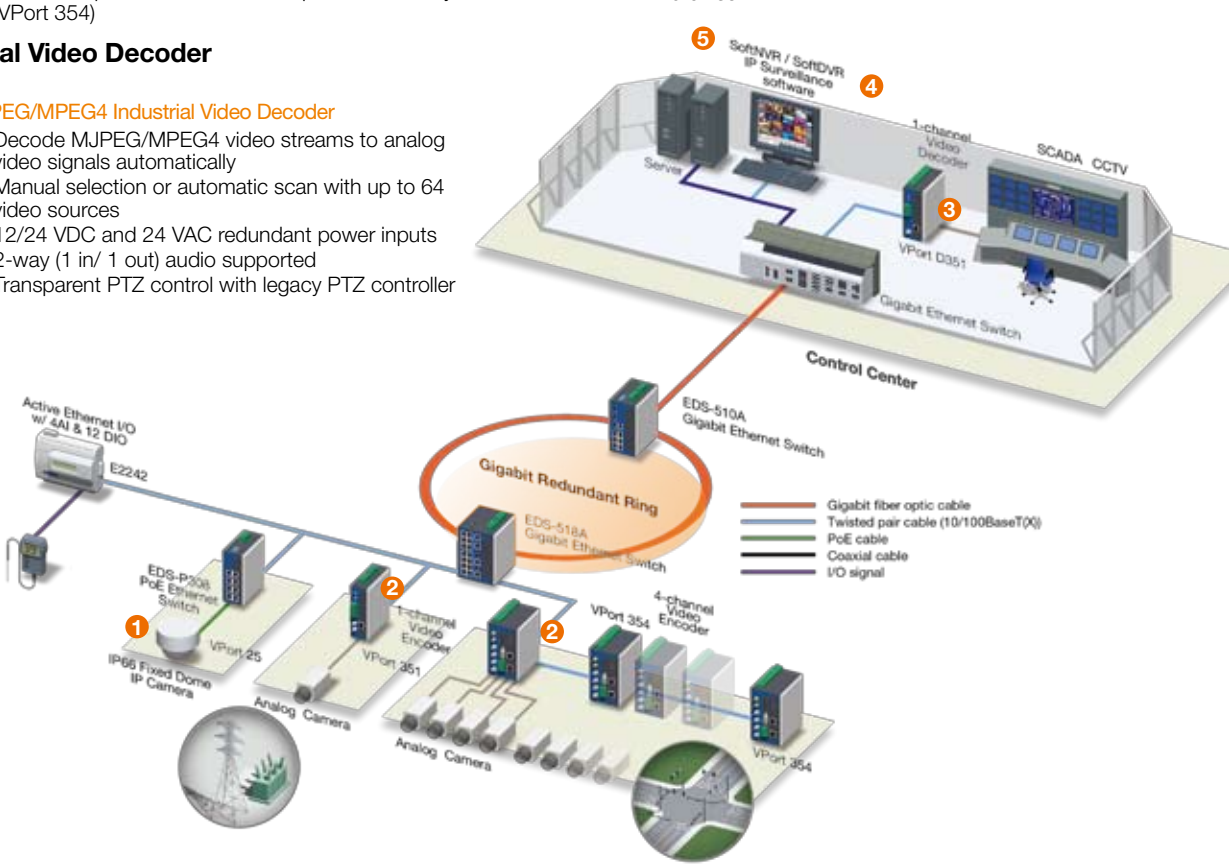
### 5 Easy-to-use IP Surveillance Software

**SoftDVR Pro**

16-channel IP Surveillance Software for Small Systems

- Multi-screen viewing format (maximum 16 channels)
- Event-driven recording
- Easy to use search and playback
- Store data to network hard disk
- Set schedule for recording and activating alarms
- Remote access by web browser

4-channel SoftDVR Lite bundled free with VPort's video encoders




## Free Software Development Kit (SDK)

**For Third-party Video Software and System Integrators**

- URL Commands with HTML programming for web systems
- ActiveX Control SDK uses Microsoft COM technology that integrates easily with browsers and SCADA automation systems
- API SDK offers C Library for customized software and systems

FREE Download VPort SDK

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# Industrial Wireless Ethernet

**AWK-3121/1100 series** Industrial IEEE 802.11a/b/g or IEEE 802.11g/b Wireless AP/Bridge/AP Client

**AWK-1200 series** Industrial IEEE 802.11g/b Wireless AP/Bridge or AP Client for Outdoors

## Industrial Wireless Networking Solutions

The AWK-3121 is designed to be used with Ethernet switches and other Ethernet-ready devices to provide ready access to an IEEE 802.11 a/b/g wireless LAN. The security is enhanced with WEP, WPA, WPA2, MAC address filtering, and IEEE 802.1X. In addition, the AWK-3121 packs many industrial features, such as IP30 housing, DIN-Rail mounting, PoE capability, and power redundancy, making it convenient and reliable for industrial wireless applications. An extended operating temperature model (-40 to 75°C) is also available to ensure stable operation under extreme conditions.

### AWK-3121

Industrial Wireless AP/Bridge/AP Client

- IEEE 802.11a/b/g compliant
- High security with WPA/WPA2/802.1X/MAC address filtering
- Power inputs by redundant 24 VDC or PoE
- Industrial design: IP30, DIN-Rail mounting, -40 to 75°C

## Extend Wireless Networking to Outdoors

Moxa's AWK-1200 series are IP68/67 rated AP/Bridge and AP Client that are tough enough to guard against the effects of water, dirt, and heat. You may choose from various antennas and make use of the 802.3af PoE capability to get maximum deployment flexibility. In particular, the -20 to 70°C operating temperature range enables the AWK-1200 to withstand outdoor temperature changes. It also supports advanced security with WEP, WPA/WPA2, and IEEE802.1X authenticator, for secure transmission over wireless. Enjoy the best in outdoor wireless networking with the AWK-1200 series!

### AWK-1200 Series

Outdoor IP68/67 Wireless AP/Bridge or AP Client

- IEEE 802.11g/b compliant
- Dust tight, watertight, and weatherproof construction
- Point-to-point, point-to-multipoint wireless connectivity
- WEP/WPA/WPA2/IEEE 802.1X authenticator
- -20 to 70°C operating temperature range

www.moxa.com/support/guidebooks

### AWK-1100 Series

Industrial IEEE 802.11g/b Wireless AP/Bridge/AP Client

- IEEE 802.11g/b compliant
- WEP/WPA/IEE 802.1X/MAC address filtering
- Power inputs by redundant 24 VDC or PoE
- Industrial features: IP30, DIN-Rail mounting

### Overview of Industrial Wireless Ethernet

| Model | Security | | | | | Features | | | |
|---|---|---|---|---|---|---|---|---|---|
| | WEP | WPA | WPA2 | IEEE 802.1X | Hide SSID | Standard | IP Rating | Operating Temp. | Power Redundancy |
| AWK-3121 | ✔ | ✔ | ✔ | ✔ | ✔ | 802.11a/b/g | IP30 | 0 to 60°C, -40 to 75°C (T model) | ✔ |
| AWK-1200-AP | ✔ | ✔ | ✔ | ✔ | ✔ | 802.11g/b | IP68 | -20 to 70°C | |
| AWK-1200-AC | ✔ | ✔ | | ✔ | ✔ | 802.11g/b | IP67 | -20 to 70°C | |
| AWK-1100 | ✔ | ✔ | | ✔ | ✔ | 802.11g/b | IP30 | 0 to 60°C | ✔ |

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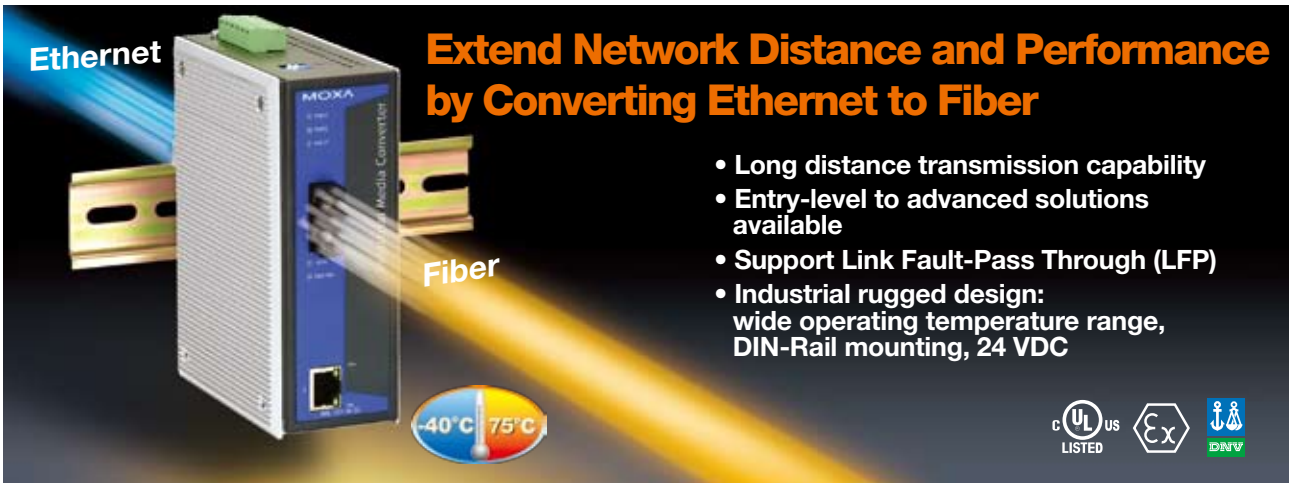
# Ethernet to Fiber Media Converters




## Extend Network Distance and Performance by Converting Ethernet to Fiber

- Long distance transmission capability
- Entry-level to advanced solutions available
- Support Link Fault-Pass Through (LFP)
- Industrial rugged design: wide operating temperature range, DIN-Rail mounting, 24 VDC

Moxa offers a wide array of industrial media converters from entry-level (IMC-21) to advanced (IMC-101G/101) solutions, which help you to extend transmission distance and performance in economical and reliable ways. Converting Ethernet to optical fiber allows you to transmit data over distances up to 80 km, and protects the data with superior EMI and surge protection. Moxa's media converters are your smart choice for many remote network management applications.

### Advanced IMC-101G/101 Series

10/100/1000BaseT(X) to 1000BaseSX/LX/LHX/ZX

- Link Fault-Pass Through (LFP)
- Power failure, port break alarm by relay output
- Redundant power inputs
- -40 to 75°C operating range

10/100BaseT(X) to 100BaseFX

- Class 1 Div. 2/Zone 2 certified
- Link Fault-Pass Through (LFP)
- Power failure, port break alarm by relay output
- Redundant power inputs
- -40 to 75°C operating range

### Cost-effective IMC-21 Series

10/100BaseT(X) to 100BaseFX & 10BaseT to 10BaseFL

- Link Fault-Pass Through (LFP)
- Power inputs: 12 to 45 VDC, 18 to 30 VAC
- -10 to 60°C operating range
- IP30, DIN-Rail mounting

## DIN-Rail 24/48 VDC Power Supplies

DR-45-24 45W

- Input: 85-264 VAC (47-63 Hz) or 120-370 VDC
- Output: 48W, 24 VDC, 0-2A
- Operating Temp.: -10 to 50°C

DR-75-24 75W

- Input: 85-264 VAC (47-63 Hz) or 120-370 VDC
- Output: 76.8W, 24 VDC, 0-3.2A

DR-120-24 120W

- Input: 88-132 VAC/176-264 VAC (47-63 Hz) by switch or 248-370 VDC
- Output: 120W, 24 VDC, 0-5A
- Operating Temp.: -10 to 60°C

DR-75-48 75W

- Input: 85-264 VAC (47-63 Hz) or 120-370 VDC
- Output: 76.8W, 48 VDC, 0-1.6A
- Operating Temp.: -10 to 60°C

DR-120-48 120W

- Input: 88-132 VAC/176-264 VAC (47-63 Hz) by switch or 248-370 VDC
- Output: 120W, 48 VDC, 0-2.5A
- Operating Temp.: -10 to 60°C

### Optimize Your Assembly Tasks with the RK-4U Mounting Kit

Most Moxa products that are designed for DIN-Rail or wall mounting now have a new mounting option. Moxa's RK-4U is a special mounting kit that allows DIN-Rail or wall-mounted products to be installed on a 19-inch rack. With its rugged construction, the non-rack devices can be securely mounted within a 19-inch rack cabinet.

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